

that would generally be retained on a 6 inch (150 mm) sieve, and not larger than that which could be tailgated from a single axle 8 to 10 ton (7 to 9 Mg) dump truck. In addition, some 10 inch to 12 inch (250 to 300 mm) material shall be represented as an intermediate size. Shot rock shall have a maximum weighted loss of 30 percent when subjected to five cycles of the Sodium Sulfate Soundness test, MP 703.00.22.

Acceptance for gradation shall be on the basis of a letter of certification from the Producer verifying that the sizes specified are represented.

SECTION 705 ASPHALT MATERIALS

Asphalts shall be made by refining of petroleum and shall be free from tar or tar products. The respective types and grades shall meet the specification requirements.

Asphalts shall be sampled in accordance with AASHTO T40. When asphalt material is furnished by a supplier who is not certified under provisions of MP 401.02.25, the supplier shall be required to have each batch or lot of material, to be furnished to the Division, sampled by a Division-approved inspection agency, in accordance with MP 700.00.01 and shall have the samples tested for compliance with the governing Specification in a Division-approved laboratory.

Measurement of the volume of asphalt materials shall be based on the volume of the materials at 60° F (15.5° C). Volumes measured at higher or lower temperatures shall be corrected to the volumes of the material at 60° F (15.5° C) using the coefficients of expansion given below.

| TEMPERATURE CONVERSION FACTORS | |
|--------------------------------|-------------------|
| Material | Coefficient |
| Asphalt Emulsion | 0.00025 (0.00045) |
| Asphalt Cement | 0.00035 (0.00062) |
| Cut-back Emulsified Asphalt | 0.0004 (0.0007) |

Application Temperatures: Unless otherwise indicated or directed, the ranges will be used as guide for application temperatures for the various asphalt materials. Field conditions may require temperatures outside these ranges.

| TABLE 705-APPLICATION TEMPERATURES | | |
|---|---|-------------------|
| Type and Grade of Material | Application Temperature Range Degrees Fahrenheit (Celsius) | |
| Asphalt's | Spray | Mix |
| MC-250 | 100-225 (36-117) | 100-225 (36-117) |
| RS-1 | 70-140 (21-60) | ----- |
| RS-2 | 125-185 (52-85) | ----- |
| HFRS-2 | 125-185 (52-85) | ----- |
| MS-1 and MS-2 | 70-160 (22-71) | 70-160 (22-71) |
| HFMS-2 | 70-160 (22-71) | 70-160 (22-71) |
| SS-1 and SS-1h | 70-160 (22-71) | 70-160 (22-71) |
| AEM-1 | 80-125 (27-52) | 80-125 (27-52) |
| AEM-2 | 120-160 (49-71) | 120-160 (49-71) |
| AEM-3 | 140-180 (60-82) | 140-180 (60-82) |
| AEM-4 | 160-190 (71-88) | 160-190 (71-88) |
| CRS-1 | 125-185 (52-85) | ----- |
| CRS-2 | 125-185(52-85) | ----- |
| CMS-2 and CMS-2h | 70-160 (22-71) | 70-160 (22-71) |
| CSS-1 and CSS-1h | 70-160 (22-71) | 70-160 (22-71) |
| Asphalt Primer for Dampproofing and Waterproofing | 50-80 (10-27) | ----- |
| Asphalt for Dampproofing and Waterproofing | 300-350 (149-177) | ----- |
| Asphalt Cement | | |
| AC-5 | 285-350 (141-177) | 250-325 (121-163) |
| AC-10 | 285-350 (141-177) | 250-325 (121-163) |
| AC-20 | 285-350 (141-177) | 250-325 (121-163) |

705.1-WINTER GRADE CUT-BACK ASPHALT: This material shall conform to the requirements specified for MC-250 in AASHTO M 82 and in addition shall meet the requirements of AASHTO T 182.

TABLE 705.1 – ASPHALT EMULSION

| Specification Designation | CBAE Primer | AEM-1 |
|---|--------------------|--------------|
| Furol Viscosity at 77°F (25° C) | 30 - 100 | 40 - 250 |
| Coating Test | Note 1 | Note 2 |
| Water Content (percent) | 3 - 8 | 3 - 8 |
| Residue by Distillation (percent) | 45 + | 50 + |
| Residue Penetration 77°F (25° C) 100 g 5 sec | 50 - 200 | |
| Residue Solubility in Trichloroethylene (percent) | 97.5 + | 98 + |
| Residue Ash Content (percent) | 3.0 | |

Note 1: Wet Stone Coating Test. Fifty grams of a standard reference gravel washed in distilled water, having a minimum pH of 6.3, air-dried for a minimum of 24 hour, and graded to a size that 100 % passes a 3/8 in. (9.5 mm) sieve and is retained on a No. 4 (4.75 mm) sieve, shall be weighed into an eight-ounce seamless tin box and covered with distilled water for five minutes, after which the excess water shall be drained off, and four grams of primer shall be placed on the wet gravel immediately. The mass shall be stirred vigorously for not over five minutes, using a heavy glass rod or metal paddle. At the end of the period the aggregate shall be completely coated with asphalt. Samples of Ohio River gravel aggregate for testing purposes may be secured from the Contract Administration Division's Materials Section, Charleston, West Virginia.

Note 2: The wet aggregate coating test of AASHTO T182 shall be met. Minimum area of aggregate coated shall be 95%.

705.2 – LIQUID ASPHALT (RAPID CURING TYPE):

Rapid curing liquid asphalt shall conform to the requirements of AASHTO M 81.

705.3 – LIQUID ASPHALT (MEDIUM CURING TYPE):

Medium curing liquid asphalt shall conform to the requirements of AASHTO M 82.

705.4 – ASPHALT EMULSION:

Asphalt emulsion in the RS, HFRS, MS, HFMS, and SS grades shall conform to the requirements of AASHTO M 140. Additional cut-back asphalt emulsion grades shall conform to the requirements of Table 705.1. The cut-back asphalt emulsions in Table 705.1 shall be tested in accordance with the applicable methods of testing Liquid Asphalt (Rapid Curing Type), AASHTO M 81.

705.5 – PERFORMANCE GRADED BINDERS:

Performance graded binders shall conform to the requirements of AASHTO MP-1. Unless specified differently in the contract plans, the

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following performance graded binders will be used in the counties as listed (county where the project is located):

PG 64-22: Berkeley, Boone, Braxton, Brooke, Cabell, Calhoun, Clay, Doddridge, Fayette, Gilmer, Hampshire, Hancock, Harrison, Jackson, Jefferson, Kanawha, Lewis, Lincoln, Logan, McDowell, Marion, Marshall, Mason, Mercer, Mineral, Mingo, Monongalia, Monroe, Morgan, Nicholas, Ohio, Pleasants, Putnam, Raleigh, Ritchie, Roane, Summers, Taylor, Tyler, Wayne, Wetzel, Wirt, Wood, Wyoming.

PG 58-28: Pendleton, Pocahontas, Randolph, Tucker.

For the counties of Barbour, Grant, Greenbrier, Hardy, Preston, Upshur, and Webster, either PG 64-22 or PG 58-28 may be used at the contractor's option.

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705.7-ASPHALT FOR DAMPPROOFING AND WATERPROOFING:

Materials shall conform to the requirements of AASHTO M 115. Type B.

705.8-PRIMER FOR USE WITH ASPHALT IN DAMPPROOFING AND WATERPROOFING:

This primer shall conform to the requirements of AASHTO M 116.

705.9 THROUGH 705.10-BLANK

705.11-CATIONIC EMULSIFIED ASPHALT:

Cationic emulsified asphalt shall conform to the requirements of AASHTO M 208.

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SECTION 707 CONCRETE ADMIXTURES, CURING AND COATING MATERIALS

707.1-AIR-ENTRAINING ADMIXTURES FOR CONCRETE:

707.1.1-Acceptance Requirements for Air-Entraining Admixtures:

707.1.1.1-In the event that the Contractor elects to use an air-entraining admixture, evidence based on tests made in a recognized laboratory shall be submitted to show that the material conforms to the requirements of AASHTO